February 9, 1960

Dr. Julius Marmur
Department of Chemistry
Harvard University
12 Oxford Street
Cambridge 38, Massachusetts

Dear Dr. Marmur:

Dr. Kornberg has asked me to reply to your letter of January 28.

We have identified three distinct nucleases acting on DNA in E. coli B. One of these, which is active on intact DNA, seems to have an absolute magnesium requirement. A second enzyme acts only on DNA which has either been heated or partially degraded with the first nuclease or pancreatic DNase. It shows about one-fourth of maximal activity in the absence of added magnesium. It is, however, almost completely inactive in the presence of .01 M Versene. We have done very little with the third nuclease, but it too appears to be inactive in the presence of Versene.

To answer your question then, the nucleases that we have identified in E. coli B. would not be expected to show much activity in the presence of Versene. The situation with regard to K-12 however, may be different.

We have been able to isolate DNA from E. coli B. which seems to be reasonably good, with E (p) values of 6.4 - 6.9 and reduced viscosities ranging from 45 - 60 deciliters per gram. In these isolations we have used the Duponal procedure of Zamenhof, modified as described in our article in the Proc. Natl. Acad. Sci. 44, 1191 (1958).

Sincerely yours,

I. R. Lehman

IRL:ms